comparator compares an envelope voltage of an output of a power amplifier that has been corrected by a signal outputted from an amplitude correction memory with an envelope voltage before the correction, to detect which of the envelope voltages is larger. A logic section adds and/or subtracts data in an amplitude compensation memory to correct the relationship as to which of the envelope voltages is larger. Data in the memory is updated by one bit for every operation. The data is corrected to a correct value by accessing one address. In an inputted high-frequency signal, one voltage appears at a point on the time axis, if the envelope changes like a QPSK modulation wave. Thus, all addresses are corrected to proper values.--

IN THE CLAIMS

Please amend claims 1-35 by rewriting same to read as follows:

--1. (Amended) A distortion compensation apparatus for compensating for a distortion component generated in a device, comprising:

first envelope detection means for detecting an input envelope voltage of an input signal supplied to the device;

second envelope detection means for detecting an output envelope voltage of an output signal of the device;

comparison means for comparing the input envelope voltage detected by the first envelope detection means with the output

envelope voltage detected by the second envelope detection means;

comparison result correction means for correcting a relationship corresponding to a result of the comparison made by the comparison means indicating which of the envelope voltages is larger;

amplitude control signal generation means for generating an amplitude control signal for controlling an amplitude of the input signal based on a correction output of the comparison result correction means; and

amplitude control means for controlling a gain of the amplitude of the input signal based on the amplitude control signal generated by the amplitude control signal generation means.

--2. (Amended) The apparatus according to claim 1, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data for amplitude correction in correspondence with the input envelope voltage detected by the first envelope detection means, and for updating data for amplitude correction based on the correction output of the comparison result correction means.

--3. (Amended) The apparatus according to claim 2, wherein the amplitude correction data output means is a writable storage medium that stores the data for amplitude

correction.

--4. (Amended) The apparatus according to claim 3, wherein the amplitude correction data output means comprises two writable storage media.

--5. (Amended) The apparatus according to claim 4, wherein the two writable storage media alternately perform reading and updating of the data for amplitude correction.

--6. (Amended) The apparatus according to claim 1, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs one of a +1 bit and a -1 bit based on a latch value of the result.

--7. (Amended) A distortion compensation apparatus for compensating for a distortion component generated in a device, comprising:

first envelope detection means for detecting an input envelope voltage of an input signal supplied to the device;

second envelope detection means for detecting an output envelope voltage of an output signal of the device;

calculation means for calculating a difference between the input envelope voltage detected by the first envelope detection means and the output envelope voltage detected by the second envelope detection means;

comparison means for comparing the difference calculated by the calculation means with a predetermined reference value;

comparison result correction means for correcting a relationship corresponding to a result of the comparison made by the comparison means indicating which of the difference and the reference value is larger;

amplitude control signal generation means for generating an amplitude control signal for controlling a gain of an amplitude of the input signal based on a correction output of the comparison result correction means; and

amplitude control means for controlling the gain of the amplitude of the input signal based on the amplitude control signal generated by the amplitude control signal generation means.

--8. (Amended) The apparatus according to claim 7, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data for amplitude correction in correspondence with the input envelope voltage detected by the first envelope detection means, and for updating data for amplitude correction based on the correction output of the comparison result correction means.

--9. (Amended) The apparatus according to claim 8, wherein the amplitude correction data output means is a writable storage medium that stores the data for amplitude correction.

--10. (Amended) The apparatus according to claim 9, wherein the amplitude correction data output means comprises two writable storage media.

--11. (Amended) The apparatus according to claim 10, wherein the two writable storage media alternately perform reading and updating of the data for amplitude correction.

--12. (Amended) The apparatus according to claim 7, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs one of a +1 bit and a -1 bit based on a latch value of the result.

--13. (Amended) The apparatus according to claim 7, further comprising two comparison means for comparing the difference calculated by the calculation means with predetermined reference values to obtain two comparison results.

--14. (Amended) The apparatus according to claim 13, wherein the comparison result correction means corrects a relationship corresponding to the two comparison results indicating which of the difference and the reference values are larger.

--15. (Amended) The apparatus according to claim 1, further comprising:

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage detected by the first envelope detection means; and

phase control means for controlling the phase of the input signal based on the phase control signal generated by the phase control signal generation means.

--16. (Amended) The apparatus according to claim 15, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data for amplitude correction in correspondence with the input envelope voltage detected by the first envelope detection means, and for updating the data for amplitude correction based on the correction output of the comparison result correction means.

02 --17. (Amended) The apparatus according to claim 16, wherein the amplitude correction data output means is a writable storage medium that stores the data for amplitude correction.

--18. (Amended) The apparatus according to claim 17, wherein the amplitude correction data output means comprises two writable storage media.

--19. (Amended) The apparatus according to claim 18, wherein the two writable storage media alternately perform reading and updating of the data for amplitude correction.

--20. (Amended) The apparatus according to claim 15, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs one of a +1 bit and a -1 bit based on a latch value of the result.

--21. (Amended) The apparatus according to claim 7, further comprising:

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage detected by the first envelope detection means; and

phase control means for controlling the phase of the input signal based on the phase control signal generated by the phase control signal generation means.

--22. (Amended) The apparatus according to claim 13, further comprising:

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage detected by the first envelope detection means; and

phase control means for controlling the phase of the

input signal based on the phase control signal generated by the phase control signal generation means.

--23. (Amended) A distortion compensation apparatus for compensating for a distortion component generated in a device, comprising:

first envelope detection means for detecting an input envelope voltage of an input signal supplied to the device;

phase control signal generation means for generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage detected by the first envelope detection means;

phase control means for controlling the phase of the input signal based on the phase control signal generated by the phase control signal generation means;

second envelope detection means for detecting an output envelope voltage of an output signal of the device;

phase difference detection means for detecting a phase difference between the input envelope voltage detected by the first envelope detection means and the output envelope voltage detected by the second envelope detection means; and

addition means for adding the phase difference detected by the phase difference detection means to the phase control signal generated by the phase control signal generation means, and for supplying an addition result to the phase control means.

--24. (Amended) The apparatus according to claim 23, further comprising:

comparison means for comparing the input envelope voltage detected by the first envelope detection means with the output envelope voltage detected by the second envelope detection means;

comparison result correction means for correcting a relationship corresponding to a result of the comparison made by the comparison means indicating which of the envelope voltages is larger;

amplitude control signal generation means for generating an amplitude control signal for controlling an amplitude of the input signal based on a correction output of the comparison result correction means; and

amplitude control means for controlling a gain of the amplitude of the input signal based on the amplitude control signal generated by the amplitude control signal generation means.

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--25. (Amended) The apparatus according to claim 24, wherein the amplitude control signal generation means includes amplitude correction data output means for outputting data for amplitude correction in correspondence with the input envelope voltage detected by the first envelope detection means, and for updating the data for amplitude correction based on the correction output of the comparison result correction means.

--26. (Amended) The apparatus according to claim 25, wherein the amplitude correction data output means is a writable storage medium that stores the data for amplitude correction.

--27. (Amended) The apparatus according to claim 26, wherein the amplitude correction data output means comprises two writable storage media.

--28. (Amended) The apparatus according to claim 27, wherein the two writable storage media alternately perform reading and updating of the data for amplitude correction.

--29. (Amended) The apparatus according to claim 24, wherein the comparison result correction means latches the comparison result of the comparison means, and corrects and outputs one of a +1 bit and a -1 bit based on a latch value of the result.

--30. (Amended) A distortion compensation method for compensating for a distortion component generated in a device, comprising the steps of :

detecting an input envelope voltage of an input signal supplied to the device;

detecting an output envelope voltage of an output signal of the device;

comparing the input envelope voltage detected in the

input envelope detection step with the output envelope voltage detected in the output envelope detection step;

correcting a relationship corresponding to a result of the comparison made in the comparison step indicating which of the envelope voltages is larger;

generating an amplitude control signal for controlling an amplitude of the input signal based on a correction output of the comparison result correction step; and

controlling a gain of the amplitude of the input signal based on the amplitude control signal generated by the amplitude control signal generation step.

--31. (Amended) The method according to claim 30, further comprising the steps of:

generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage detected in the input envelope detection step; and

controlling the phase of the input signal based on the phase control signal generated in the phase control signal generation step.

--32. (Amended) A distortion compensation method for compensating for a distortion component generated in a device, comprising the steps of:

detecting an input envelope voltage of an input signal supplied to the device;

detecting an output envelope voltage of an output signal

of the device;

calculating a difference between the input envelope voltage and the output envelope voltage;

comparing the difference obtained in the calculation step with a predetermined reference value;

correcting a relationship corresponding to a result of the comparison made in the comparison step indicating which of the difference and the reference value is larger;

generating an amplitude control signal for controlling a gain of an amplitude of the input signal based on a correction output of the comparison result correction step; and

controlling the gain of the amplitude of the input signal based on the amplitude control signal generated in the amplitude control signal generation step.

--33. (Amended) The method according to claim 32, further comprising the steps of:

generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage; and

a phase control step of controlling the phase of the input signal based on the phase control signal generated in the phase control signal generation step.

--34. (Amended) A distortion compensation method for compensating for a distortion component generated in a device, comprising the steps of:

detecting an input envelope voltage of an input signal supplied to the device;

generating a phase control signal for controlling a phase of the input signal in correspondence with the input envelope voltage;

controlling the phase of the input signal based on the phase control signal generated in the phase control signal generation step;

detecting an output envelope voltage of an output signal of the device;

detecting a phase difference between the input envelope voltage and the output envelope voltage; and

adding the phase difference detected in the phase difference detection step to the phase control signal generated in the phase control signal generation step, and supplying an addition result to the phase control step.

--35. (Amended) The method according to claim 34, further comprising the steps of:

comparing the input envelope voltage with the output envelope voltage;

correcting a relationship corresponding to a result of the comparison made in the comparison step indicating which of the envelope voltages is larger;

generating an amplitude control signal for controlling an amplitude of the input signal based on a correction output of the comparison result correction step; and